

FFAG Lattice Design: Allowing Any Values on the Low-Energy Tunes

J. Scott Berg

Advanced Accelerator Group Meeting

18 March 2004

- Normally for my optimization, I fix the values of the tunes at the lowest energy
 - ◆ Stay sufficiently away from half integer tune
- Higher tune improves path length variation
- Higher tune increases beta functions
 - ◆ Larger aperture requirement
 - ◆ More dynamics problems
- Remove constraint on tunes, see what cost optimization gives

	Constrained	Unconstrained
Cells	105	95
Voltage (MV)	788	713
Circumference (m)	768	701
Cost (PB)	104	93

- Allowing tunes to go free improves cost
- Tunes split: horizontal is higher
 - ◆ Higher horizontal improves path length
 - ◆ Lower vertical avoids beta function spike (?)



